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## ABSTRACTS

from

## TRANSACTIONS published in JAPANESE

(Pages refer to the Japanese originals of this volume unless otherwise noticed)

### On the Fermentative Degumming of Waste Silk.

(pp. 1003~1006)

By Hideo KATAGIRI and Toshio NAKAHAMA.

(Agr. Chemical Laboratory, Kyoto Imperial University and Kanebo Silk Factory:

Received July 28, 1937.)

Part I.—Effect of Fermentative Treatment upon Degumming of Silk and Preliminary Selection of useful Degumming Bacteria.

In the ordinary process, fermentative degumming was carried out at a high temperature about 40° and for a long period nearly 5 days, therefore it might be expected that the fermenting liquid itself would produce some effects upon waste silk.

When raw silk was put into peptone water with or without toluene, any noticeable changes in chemical composition and appearance were never detected in the presence of toluene, while 45% of crude sericin and 23% of crude fat of the silk were decomposed by the natural fermentation without toluene.

Very desirable effect of natural fermentation was again produced on waste silk. Thus the direct action of fermenting liquid upon silk was quite negligible, so that degumming bacteria was ascertained to be the essential agency for the process.

It was further found that aerobic fermentation was more effective than anaerobic treatment, therefore the useful bacteria was suggested to be an aerobe.



Part II.—The Bacteria isolated from Degumming Liquids of Waste Silk.

Eighteen strains of aerobic bacteria were isolated from various kinds of degumming liquids of different factories. These bacteria were classified into four strains of cocci, one strain of short bacillus and thirteen strains of bacilli, according to their cultural characteristics on various peptone media.

The availability of various kinds of cultural liquids including very dilute peptone or degumming solution, aq. solution of sericin A and aq. extract of pupa of *Bombyx mori*, was found to be different with the bacteria; the two strains of bacilli (No. 20 and 37) revealed better growth on all of these media.

These two strains of bacilli were again found to be most effective for degumming of raw silk, when pure fermentations of the silk were carried out with all the bacteria isolated.

Thus the useful degumming bacteria were ascertained to be these two strains of bacilli by which another experimental proof was obtained with waste silk.

Part III.—The Characteristics of the useful Degumming Bacteria.

The two strains of the useful degumming bacteria (see Part II) were found to reveal very much the same natures with *Bacillus cereus* Frankland and Frankland.

However, with these bacteria, the optimum temperature was observed to be higher ( $35\sim 40^\circ$ ) than the ordinary strains ( $30^\circ$ ), and a noticeable difference in the cultural characteristics on water agar and in the manners of liquefaction of gelatin and blood serum was found between the two strains.

### Studies on micro-chemical methods for the water analysis. (I)

The micro-volumetric determination of oxygen, alkalinity and chloride in water.

(pp. 1007~1016)

By Tetuo TOMIYAMA.

(The Imperial Fisheries Institute, Tokio; Received July 27, 1937.)

Descriptions have been made on a several micro-chemical apparatus; the micro-capillary burette of 0.1 cc capacity, the oxygen bottle of 10 cc capacity and a special vessel for estimation of the alkalinity. The burette is an improved one of the Rehberg's type and the oxygen bottle is an ensmallled one of the Müller's type. The vessel for estimation of the alkalinity is a tube



which consists of two parts, the one for the titration and the other for the color comparison. The device renders the end pH\* determination quite easy. The pH value 4.3 was chosen as the end point of the titration, and Brom Cresol Green was used instead of methylorange because of the easiness in observing the color change.

The Winkler method was adopted for the determination of oxygen and the Mohr method for the determination of chloride. All analytical scales have been reduced at least to one tenth that of the macro-method. The following volume of sample is necessary for the analysis: 10 cc for the oxygen-, 5~10 cc for the alkalinity-, and 1~10 cc for the chloride-estimation. The accuracies obtained by the micro-methods were almost equal to those by the macro-methods.

### Studies on micro-chemical methods for the water analysis. (II)

A new micro-method for the estimation of oxygen consumed from permanganate.

(pp. 1017~1022)

By Tetuo TOMIYAMA and Hisaki SUETOMI.

(The Imperial Fisheries Institute, Tokio; Received July 27, 1937.)

The method is an improved iodine method which is different from the Winkler's one in adding potassium iodide directly to the alkaline digest instead of acidifying the digest first and then adding potassium iodide. A series of the critical studies of the original Schulze method indicated that the method involved two sources of error: the one due to the oxidation of chlorine ion and the other due to the oxidation of organic substance which is rather resistant to the alkaline permanganate. The errors come from the procedure of acidifying the digest before destroying the permanganate. The condition for the oxidation by the acid permanganate does not usually prevail longer than one minutes, yet causes serious errors. While modifying the method it was ascertained that the addition of potassium iodide to the alkaline digest could completely destroy the oxidizing power of permanganate. So adopting the new procedure it was able to remove the error involved in the Schulze method in such an extent that only a few per cent error is given rise from the presence of 20 pro mille sodium chloride which was nearly equivalent to the chloride content of sea water. The new procedure for the estimation is as following.



To 10-cc of sample water taken in a micro-beaker (ca. 40 cc. capacity), add 0.5 cc 1.1 *N* sodium hydroxide, 1.00 cc 0.015 *N* potassium permanganate, and several pieces of ignited clay. Boil the mixture gently for ten minutes, then add 0.2 cc of potassium iodide and mix well. Cool the digest, preferably dipping in cold water, then add 0.2 cc dilute sulfuric acid (1:3). Titrate the liberated iodine by 0.1 *N* sodium thiosulfate, using the micro-burette. The result may be computed by the following formula.

$$P = (Bl - T) \times 10 \times f \times \frac{100}{s}$$

*P* = the oxygen consumed from permanganate expressed in cc 0.01 *N*  $\text{KMnO}_4$  per 100 cc sample water.

*Bl* = cc of 0.1 *N*  $\text{Na}_2\text{S}_2\text{O}_3$  used in the blank experiment.

*T* = cc of 0.1 *N*  $\text{Na}_2\text{S}_2\text{O}_3$  used in the experiment,

*f* = the factor of 0.1 *N*  $\text{Na}_2\text{S}_2\text{O}_3$ .

*s* = the volume of sample water taken for the estimation.

## Über die Acetylmethylcarbinol- und 2, 3-Butylenglykol-Bildung durch Mikroben. (III)

Über die Isolierung des Acetylmethylcarbinols. (Acetoin)  
(ss. 1045~1049)

Von Yukio TOMIYASU.

(Aus dem Agrikulturchemischen Institut der Kaiserlichen Kyushu-Universität;

Zugl. 9, 8, 1937.)

Verfasser isolierte als Erster das Acetoin in höchst reinem Zustand aus einer mit *Bacillus lactis aerogenes* angestellten Glukosegärung.

Ausführung: Das Vakuum-Destillat des Gärguts wurde mit Chloroform nach Zusatz von Ammoniumsulfat 2 mal extrahiert, und die so erhaltene chloroformische Lösung im Oelbade im Kohlensäurestrom abdesilliert, um das Lösungsmittel zu beseitigen. Darauf wurde der Rückstand nach der Trocknung mittels Natriumsulfat zuerst im Vakuum und dann bei gewöhnlichem Druck fraktioniert und dadurch 2g reines Acetoin (S. P. 140~142°C) aus 10 L Gärgut gewonnen.

Identifizierung: Die isolierte Substanz zeigte folgende Eigenschaften.

1. Sie reduzierte die Fehlingsche Lösung schon in der Kalte intensiv.

2. Sie zeigte bei gewöhnlicher Temperatur Jodformreaktion.
3. Das p-Nitrophenylosazon schmolz bei 323°C, das semicarbazon bei 184°C.
4. Sie erzeugte Diacetyl fast quantitativ bei der Oxydation mit Ferri-chlorid.
5. Sie zeigte dieselbe Farbenreaktion wie synthetisches Acetoin. Die Farbenreaktion mittels Nitroprussidnatrium war ganz dieselbe wie bei Aceton, aber das Aceton färbt in sehr verdünnter Lösung (z. B. 0.001%) mit Salicylaldehyd rot, während Acetoin mit demselben gar nicht färbt. Acetoin färbt violett (färbt deutlich in 0.001%iger Lösung) mit schwefelsäurem Vanillin oder mit Sulfanilsäure und Natriumnitrit sehr empfindlich.

### Experiment on the Colon Group of Fishes. (III) (continued)

(pp. 1050~1064)

By Yutaka YASUKAWA.

(The Department of food Control of the Government Institute from Infectious Disease.

Head of the Department: Dr. Y. Tohyama; Received June 10, 1937.)

### Studies on Brewing-concerns in Kwantung. (II)

(pp. 1065~1085)

By Wai Ying YEE.

(Agricultural Chemical Laboratory, Tokyo Agricultural College; Received August 3, 1937)

### Studies on Brewing-concerns in Kwantung. (III)

(pp. 1086~1092)

By Wai Ying YEE.

(Agricultural Chemical Laboratory, Tokyo Agricultural College; Received August 3, 1937)



## Alcohol Manufacture from Potatoes. (II)

### Storage of Potatoes. Part 3.

#### Drying method of Potatoes.

(pp. 1093~1105)

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(Institute of Hokkaido Industrial Experiment Station; Received August 5, 1937.)

The object of our experiments is the determination for the cost of production of dry-potatoes as a raw material of alcohol manufacture. We have investigated, therefore, several drying methods at industrial stand-point and concluded as follows:—

1. The natural drying method similar to that used in warm districts for sweetpotato drying is out of discussion at such a climate of Hokkaido.

2. The refrigeration method, so much attention has been given in recent years to a rural by-product, is very tedious, laborious and comparatively expensive in the case of industrial scale.

3. So we recommend rather a method of natural treatments which can be easily done everywhere at Hokkaido, that is, the harvested potatoes have been exposed in weather from last autumn to early spring at the state of simple hanging.

4. We have arrived to the conclusion that the industrial drying process consists of a combination of crushing, pressing and drying. Hence, to calculate this cost of production, it has been done with 64.5 tons of potatoes, which contain varieties of "Hebron", "Sirodoitu", "Ezonisiki" and "Kintoki" stored in farm with ordinary method.

5. Crusing and pressing processes have been carried out at our experimental factory and drying process has been used the equipments of the Itamoto's Fish Meal Co. at Otaru.

6. We have found that the new designed press-roll machine has some defects in its mechanical constructions which will be expected to improve, but it pressed out juice of potatoes, corresponding to 43% of original material, with considerable amounts of starch which was recovered by a horizontal centrifugal machine.

7. The total pressed pulp which has been dried at Otaru amounted to 24.4 tons and 11.6 tons of dry-potatoes have been produced.

8. From our experimental results, we have a assumption for a drying equipment of 18 tons daily dry-products which coresponds to a material of a factory of 3600 KL annual production of absolute alcohol and calculated the cost of its drying.

9. According to this calculation the cost of 18 tons of dry-potatoes amounted to ¥ 80.0 or ¥ 4.44 each 100 kg of dry-potatoes.



# Alcohol Manufacture from Potatoes. (III) On the Preparing of Alcohol-mash by the method of Acid-hydrolysis of Potato. Part 1.

(pp. 1106~1118)

H. OKADA, K. SUGIYAMA and K. MORI.

(The Hokkaido Industrial Experiment Station; Received August 21, 1937.)

For preparing of the alcohol-mash, the writers carried out in this paper the hydrolysis of raw potato using sulphuric or hydrochloric acid. The experimental results showed that the raw potato is hydrolysed by the hydrogenion of the medium in like manner as the starch-hydrolysis, but it is very sluggish unless mineral constituents or nitrogenous substances were removed from the potato. It is advisable, therefore, to carry out the hydrolysis, after the adequate addition of water, in the form of pulp which was prepared from potato by crushing and pressing.

The experimental results were summarized as follows.

(1) Under the same pressure to obtain the equal amounts of reducing substances from raw crushed potato, requires almost treble quantity of sulphuric acid as compared with the pulp which was pressed to about 40% of the material. It seems that the difference of sulphuric acid in the above is mainly due to the mineral constituents of potato.

(2) The necessary quantity of sulphuric acid under 3.5 atm. pressure is 1.8% or so on the raw potato in the case of the hydrolysis of crushed materials. That is, using 1.6~1.7 grammes of sulphuric acid (sp. gr. 1.84) on 100 grammes of raw material, it is possible to hydrolyse to 97.8% of starch after 40 minutes' working. This quantity in sulphuric acid seems to be the most profitable at 3.5 atm. pressure.

(3) In the case of the hydrolysis of raw potato pulp after addition of the same quantity of water as the pressed juice, using 0.6% sulphuric acid on the raw potato at 3.5~4.0 atm. pressure, starch converted into the reducing substances to 90~95% after 1 hour and 95~98% after 1½ hours. The above quantity of the acid seems to be slightly insufficient to obtain 95% or more reducing substances from starch of potato within 1 hour.

(4) When the raw potato pulp is hydrolysed, in the same manner as above, by using 0.5~0.6% hydrochloric acid on raw potato, the reducing substances are produced to 96~98% within 1½~1¾ hours under 3.0~3.5 atm. pressure. This quantity of hydrochloric acid seems also to be minimum requirement.



## On some Chemical Properties of Limestone Red Soil in Regions of different Climate.

(pp. 1119~1128)

By R. KAWASHIMA.

(Agr. Chem. Laboratory, Kyushu Imperial University; Received August 13, 1937.)

In this paper is dealt with some chemical properties of limestone red soil (Terra rossa) in regions of different climate. The soils examined are of surface layer and were collected in Chinchou of South-Manchuria, in Okinawa island, and in Nice and Palermo on the coast of Mediterranean Sea.

### CLIMATE.

The climatic records of related regions are given in table I.

Table I. The Climate.

Region	Years averaged	Temperature (°C)	Precipitation (m.m.)	Humidity (%)	N S Quotient
Chinchou	30	10.2	609.7	66.1	194
Nice	50	15.0	857.0	61.0	173
Palermo	35	17.3	756.0	69.0	166
Okinawa	43	22.0	2115.6	79.0	514

The climate of Chinchou is somewhat Continental and both the winter cold and summer heat is relatively severe. The rain is excessively abundant during three summer months from July to September. The climate of Nice and Palermo is typical Mediterranean. That of Okinawa island is humid subtropical, and although the rain is abundant in summer, it distributes rather evenly throughout the year.

### SOME CHEMICAL DATA ON FINE SOIL.

The pH-value, loss on ignition, exchange capacity and exchangeable lime content of fine soil (<2.0 mm $\phi$ ) are given in table II. The exchange capacity is determined by ammonium acetate method and exchangeable lime content by Hissink method.

Table II. Some chemical data on fine soil.

Region	Loss on ignition %	pH		Exchange capacity (M. E. per 100 g.)	Exchangeable lime (M. E. per 100 g.)	Percentage amount in exchange lime
		H <sub>2</sub> O	KCl			
Chinchou	4.80	7.20	6.54	17.80	15.43	86.7
Nice	8.11	7.70	7.13	15.33	13.28	87.3
Palermo	11.83	7.84	7.10	27.36	25.69	89.9
Okinawa	11.66	6.83	6.78	34.46	26.90	78.1



The data in table II and I indicate the intimate correlation between both pH-value, percentage amount of exchangeable lime and NS-quotient.

#### CHEMICAL ANALYSIS OF CLAY FRACTION.

The colloidal clay fraction below 0.001 mm in diameter were separated by settling method and analysed. The loss on ignition, the total silica—and sesquioxide contents and their molecular ratios are given in table III.

Table III. Composition of colloidal clay fraction.

Region	Loss on ignition %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	Fe <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> R <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> Al <sub>2</sub> O <sub>3</sub>
Chinchou	9.21	45.09	22.03	11.58	33.61	3.46	2.59	0.33
Nice	10.51	44.41	24.91	9.79	34.70	3.02	2.42	0.25
Palermo	12.89	40.64	29.01	11.19	40.20	2.37	1.91	0.24
Okinawa	13.66	37.62	27.82	13.88	41.70	2.29	1.74	0.32

The degree of loss on ignition of clay fraction is in proportion to the atmospheric temperature.

The content of silica is inversely proportional to atmospheric temperature and that of sesquioxide is in direct proportion to it. Consequently, both the silica-alumina and silica-sesquioxide ratios decrease with increasing atmospheric temperature.

Then the exchange capacity of both colloidal clay fraction and its washed residue treated one hour with hydrochloric acid of sp. gr. 1.1 at boiling temperature were determined by ammonium acetate method. The results are given in table IV.

Table IV. The exchange capacity of colloidal clay fraction.

Region	Exchange capacity (M. E. per 100 g.)	Exchange capacity of HCl-treated residue (M. E. per 100 g. original clay)	Percentage amount in residue
Chinchou	41.41	8.13	19.6
Nice	31.70	7.86	24.7
Palermo	33.65	8.10	24.1
Okinawa	24.56	9.87	40.0

Comparing the data of table IV and III we observe the intimate correla-



tion between the exchange capacity of colloidal clay fraction and its silica-alumina and silica-sesquioxide ratio. The exchange capacities of all residues treated with HCl of sp. gr. 1.1 at boiling temperature are nearly equal. This indicates the uniformity of exchange complex contained in acid treated residue. The percentage amount of exchange complex decomposed by boiling HCl of sp. gr. 1.1 is the highest in Chinchou clay and the lowest in Okinawa clay and it is inversely proportional to atmospheric temperature.

### Studies on the Fractionation and Absorption Spectra of the Lobster-Proteins. (I)

(pp. 1129~1137)

Kinsuke KONDO, Takao YAMADA and Sakae SHINANO.

(Laboratory of the Nutritional Chemistry, Kyoto Imperial University ;

Received July 29, 1937.)

(1) Four kinds of proteins—the water-soluble, the saline solution-soluble, the diluted alkaline solution-soluble and the diluted alkaline solution-insoluble—were isolated from the fresh female lobster-meat (*Penaeus canaliculatus* Oliv.). The former two were, as is known, myogen and myosin, and the latter two were called “myotelin” and “myosein” by the writers.

(2) The myogen and myosin were fractionated respectively into three fractions by the different precipitabilities in the amm. sulphate solution. However, these fractionated proteins could not be assumed to be the unit components of the myogen and myosin.

(3) It was proved that the myogen, myosin and myotelin of the lobster-meat were not homogeneous proteins and it was also inferred that the qualitative and quantitative variations of the protein-components, which took place under various conditions, were the causes of the “fluctuation” of the lobster meat-protein.

(4) The absorption spectra of the fractionated proteins were studied. The absorption powers of the myogens were in parallel with their precipitabilities in the amm. sulphate solution. This was the same as with serum proteins, but with myosin it was not so.

(5) The absorption powers and the contents of tyrosin and tryptophan were in the following order among the myogen, myosin and myotelin:

Myogen>Myotelin>Myosin.

(6) The order of the nitrogen amounts of humin-, and arginin-form among these proteins were: Myogen>Myosin>Myotelin, and for the amounts of histidin-, lysin-, and cystin-form the following order was found;

Myogen<Myosin<Myotelin.

(July 4, 1937)



## Studies on the Fractionation and the Absorption Spectra of the Lobster-Proteins. (II)

(pp. 1138~1145)

By Kinsuke KONDO and Takao YAMADA.

(Laboratory of the Nutritional Chemistry, Kyoto Imperial University;

Received July 29, 1937.)

(1) We fractionated the hot water soluble protein from the fresh female lobster-meat (*Penaeus canaliculatus* Oliv.) into several fractions and photographed the absorption spectra of the fractionated proteins.

(2) The absorption curves of the fractionated proteins were traced. Examining these curves, we could infer that there were two kinds of proteins in the hot water soluble part of the lobster-meat. The one contains no tryptophan and tyrosin, and the other contains a certain amount of tryptophan and tyrosin. The former will be gelatin and the latter will be the protein, which is derived from myogen or myosin while the meat is extracted with boiling water. We propose to call it "myomin".

(3) It was shown that the gelatin and myomin were not homogeneous proteins, and it was considered that the "fluctuation" of the gelatin- and myomin-components would be the principal causes for the variation of the tastes of lobster-meat by season, sex, age and living environments.

(July 5, 1937)

## Aminosäure-Abbau durch *Aspergillus Oryzae*. (I)

Bildung von Phenylbrenztraubensäure

aus l-Phenylalanin (I).

(ss. 1146~1152)

Von T. UYEMURA.

(Agrikulturchemische Fakultät der Tokyo Kaiserlichen Universität;

Eingegangen am 28. 7. 1937.)

Phenylbrenztraubensäure wurde isoliert als Abbauprodukt von l-Phenylalanin durch einen, zum *Asp. Oryzae* gehörenden Stamm, wobei eine 1%ig. Glykose und 1%ig. l-Phenylalanin enthaltende Nährlösung unter Zusatz von 2%ig. Kreide zur Verfügung gestellt wurde. Die Säure bildete sich nicht aus Anderem als Phenylalanin. Der Zusatz von Kreide hatte keinen Einfluss über die Bildung von Phenylbrenztraubensäure aus l-Phenylalanin.



## Aminosäure-Abbau durch *Aspergillus Oryze*. (II)

(II) Bildung von Phenylbrenztraubensäure

aus l-Phenylalanin (II).

(ss. 1153~1158)

Von T. UYEMURA.

(Agrikulturchemische Fakultät der Tokyo Kaiserlichen Universität;

Eingegangen am 28, 7, 1937.)

Der Verfasser bestätigte dass 30 versuchte Stämme von *Asp. Oryzae* die Phenylbrenztraubensäure aus l-Phenylalanin bildeten; und dabei wurde ein kalorimetrisches Verfahren durch  $\text{FeCl}_3$ -Reaktion auf die Bestimmung von Phenylbrenztraubensäure angewendet.

## Sterilizing Action of Acids. 10th Report.

I. Sterilizing action of Aldehydic and Ketonic Fatty Acids.

II. Sterilizing Action of Aconitic Acide.

(pp. 1159~1164)

By Sogo TETSUMOTO.

(Government Institute for Infectious Disease; Received Sept. 6, 1937.)

### I. SYNOPSIS.

Concerning the sterilizing action of halogenated fatty acids and oxy fatty acids on the bacteria, is as I reported previously. Now I performed this experiment to study the sterilizing or preventing action of aldehydic and ketonic fatty acids and also aconitic acid on the bacteria.

Microorganisms and experimental methods used are as I reported previously.

(1). Reagents: I choiced such aldehydic and ketonic fatty acid as I mentioned in the following table.

Number of C atom	acid	Rational formulae	Molecular weight	M. p.	B. p.
C <sub>2</sub>	Glyoxylic	$\text{CHO} \cdot \text{CO}_2\text{H} \cdot \text{H}_2\text{O}$	96.032		
C <sub>3</sub>	Pyruvic	$\text{CH}_3 \cdot \text{CO} \cdot \text{CO}_2\text{H}$	88.032	13~14°	165°C
C <sub>6</sub>	Laevulinic	$\text{CH}_3 \cdot \text{CO} \cdot (\text{CH}_2)_2 \cdot \text{CO}_2\text{H}$	116.064	33°	245~246°

I studied on the following paragraph.

1) Sterilizing action of aldehydic and ketonic fatty acids at the same concentration.



2) Action of aldehydic and ketonic fatty acid salts and action of aldehydic and ketonic fatty acids anions on microorganismos.

3) Sterilizing action at the same pH of aldehydic and ketonic fatty acids.

4) Sterilizing action of monobasic fatty acids at the same concentration.

(2). Results: Results obtained are summarised as follows.

1) At the same concentration, sterilizing action of pyruvic acid is the strongest and leavulinic acid is the weakest, but the difference of strength is rather small.

2) Salts of aldehydic and ketonic acids have no sterilizing action.

3) Anions of aldehydic and ketonic acids have no sterilizing action.

4) Intensity of sterilizing power of aldehydic and ketonic acids is chiefly due to pH of each acids.

5) Aldehydic and ketonic fatty acids have the greater sterilizing action than the other monobasic fatty acid having the same C atoms. The cause of this fact is due to lower pH of each aldehydic and ketonic acids.

## II. STERILIZING ACTION OF ACONITIC ACID.

Concerning the sterilizing action of unsaturated dibasic fatty acids such as maleic acid, fumaric acid; citraconic acid, mesaconic acid, is as I reported previously.

Following to this I studied tribasic unsaturated fatty acid to know its sterilizing action on the bacteria.

(1). Reagent: Reagent used is as I mentioned in the next table.

Number of C atom	acid	Rational formulae	Constitution formulae
C <sub>6</sub>	Aconitic	C <sub>6</sub> H <sub>3</sub> (CO <sub>2</sub> H) <sub>3</sub>	$  \begin{array}{c}  \text{CH}_2\text{CO}_2\text{H} \\     \\  \text{C} \cdot \text{CO}_2\text{H} \\    \\  \text{CH}_2\text{CO}_2\text{H}  \end{array}  $

I studied on the following paragraph.

1) Intensity of the sterilizing action of aconitic acid.

2) Action of anion of aconitic acid.

3) Comparison of sterilizing action of aconitic acid and other unsaturated fatty acid.

4) Relation between the sterilizing action of unsaturated fatty acids and aconitic acid.

5) Relation between pH of unsaturated fatty acids and the sterilizing action.

By studying above mentioned paragraphs I obtained the following results.



- 1) Sterilizing action of aconitic acid is the weakest among unsaturated fatty acids having the number of C atom less than 6.
- 2) The cause of weakness is not always due to the increasing number of  $\text{CO}_2\text{H}$  and also not due to the number of pH but, due to the special individual character of aconitic acid.
- 3) Salts of aconitic acid have no sterilizing action, but have rather lengthening action on the survival of microorganisms.
- 4) Anion of aconitic acid has no sterilizing and preventing action.

### **On the Alcohol-Manufacture from Jerusalem Artichoke (Part III)**

On the Saccharification of Jerusalem Artichoke.

The Inulase of the Moulds.

(pp. 1165~1176)

By Toshinobu ASAI,

(Agricultural Chemical Laboratory, Morioka Agricultural College, Japan;

Received September 6, 1937.)

### **Mycological and Chemical Investigation on the Manufacture of Antyu. (I)**

(pp. 1177~1194)

By NAKAZAWA-Ryozi and His Co-Workers.

(The Department of Industry, Government Research Institute, Formosa, Japan;

Received August 29, 1937.)